

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
PHASE VI TMG, ITEM 106 (1) LEFT (1) RIGHT ----- 0106-812144-03/04 (12V) (2)	2/2	106FM18V Fails closed (will not switch off).  Defective toggle switch, short in switch or wiring. Degraded insulation or contamination.	END ITEM: Thermofoil heaters remain on.  GFE INTERFACE: Unable to regulate glove finger tip temperature. Finger temperature may increase beyond 110 degrees S/AD limit.  MISSION: Unable to regulate glove finger tip temperature. Finger tip temperature may increase beyond 110 degrees S/AD limit. Possible loss of mission due to finger burns.  CREW/VEHICLE: Possible finger injury to crewmember.  TIME TO EFFECT /ACTIONS: Minutes.	A. Design - The switch assembly is a Honeywell model 206AT11 two position toggle switch a hermetically sealed basic switch rated at 3 amps, and vendor certified with the temperature range of -85 degrees F to +250 degrees F. Vendor data show switch has a cycle life in excess of 25,000 cycles when operating under 1.0 (nominal current draw = 0.25 amps). The electrical wires connecting the switch to the battery pack and heaters (via LEMO electrical connectors) are soldered per NHB5300.4(3A-2) by solder certified technicians.  B. Test - Acceptance: See Inspection.  PDA: The switch assemblies are visually inspected and the continuity is verified during PDA/PIA and preparation for chamber/flight shipment.  Certification Phase VI (12V): The TMG was successfully tested (manned) during certification testing to duplicate operational usage (Ref. Certification Test Report for the Phase VI Glove, ILC Doc. 0111-712701). The following usage, reflecting requirements significance to the TMG, was documented during certification testing. The actual applies 229 hours in Certification while the actual indicates 157 hours to the Phase VI, 12-volt TMG in the Hamilton Sundstrand Limited Life Items List (EMU1-19-001).  Requirements S/AD Actual ----- Glove Joint Cycles 45142 31096 Flex/Ext (fingers) Wrist Joint Cycles Add/Abd 17104 11960 Flex/Ext 12646 9568 Rotations 20112 14144 Pressurized Hours 229 157 Pressurized Cycle @ 4.3 psig 97 99 5.3 psig 37 63 6.6 psig 16 18 Installation/Removal 49 38 Switch Actuations 228 161  The glove assembly was successfully subjected to an ultimate pressure of 110 psig during Certification Testing (Ref. ILC doc 0111-712701). This is 1.5 times the maximum BTA operating pressure based on 8.8 psig.  C. Inspection - The component switches undergo 100% visual inspection when received from the vendor. The solder joints are visually inspected by solder certified Government Quality Assurance Inspectors when fabricated. The switch assemblies are visually inspected and continuity verified during PDA/PIA and preparation for chamber/flight shipment (Ref. ILC Doc. 0111-710112 and FEMU-R-001).
		REDUNDANCY SCREENS: A-N/A B-N/A		

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		106FM18V	C-N/A	<p>D. Failure History - None</p> <p>E. Ground Turnaround - Tested per FEMU-R-001, Pre-Flight Heater Functional Test.</p> <p>F. Operational Use - 1. Crew Response - Pre-EVA/Post EVA: Troubleshoot problem, if no success do not install battery. Continue EVA prep.</p> <p>EVA: If finger tip temperature causes discomfort, other EV crewman can switch off battery power via switch in TMG pocket or disconnect LEMO connector at disconnect.</p> <p>2. Special Training - None</p> <p>3. Operational Considerations - Not Applicable.</p>

EXTRAVEHICULAR MOBILITY UNIT  
SYSTEMS SAFETY REVIEW PANEL REVIEW  
FOR THE  
I-106 GLOVE ASSEMBLY  
CRITICAL ITEM LIST (CIL)

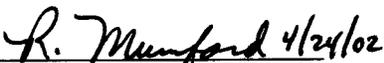
EMU CONTRACT NO. NAS 9-97150

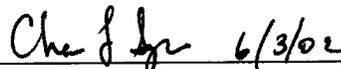
Prepared by:   
HS - Project Engineering

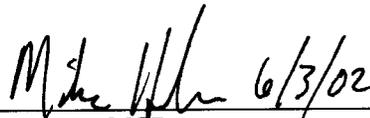
Approved by:  22mar02  
NASA - SSA/SSM

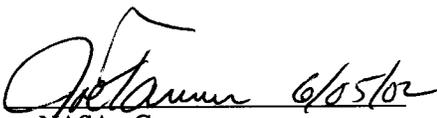
  
HS - Reliability

 5/23/02  
NASA - EMU/SSM

 4/24/02  
HS - Engineering Manager

 6/3/02  
NASA - S & MA

 6/3/02  
NASA - MOD

 6/5/02  
NASA - Crew

 6/3/02  
NASA - Program Manager